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EXAMINER	
NGUYEN, CINDY	
ART UNIT	**PAPER NUMBER**
2171	

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/090,271	KIL ET AL.	
	Examiner	Art Unit	
	Cindy Nguyen	2171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03/04/02*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-15,17-25 and 27-36* is/are rejected.

7)☐ Claim(s) *5,16 and 26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 March 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *08/08/02;06/2502;*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This is in response to application filed on 03/04/02 in which claims 1-36 are presented for examination.

1. *Information Disclosure Statement*

The information disclosure statement filed on 08/08/02, 06/25/02 and 06/12/02 are in compliance with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. Because it has been placed in the application file, and the information referred to therein has been considered as to the merits.

2. Claim Objections

Claim 5 is objected to because of the following informalities: at page 23, lines 6, one semicolon (;) need to be deleted, at line 11 three semicolon (;;;) need to be deleted. Appropriate correction is required.

3. Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 7, 17 and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 7, 17 and 28, it would not be clear to the skilled artisan , what is meant by "the nature of multiple events". The specification does not provide "such full, clear, concise, and exact terms" on the "natured of multiple events".

4. Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 7,11-15, 17, 21-25, 27, 28 and 32-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Bapat (U.S 5295256).

Regarding claims 1, 13 and 22, Bapat discloses: A method, a computer system and a computer readable medium article of manufacture with instructions for the purpose of preparing a relational database having a many-to-one relationship for data mining (fig. 1, Bapat), the method comprising the steps: generate a hierarchical data tree(12, fig. 1, Bapat) based on a relational data model (relational tables 18, fig. 1, Bapat) and perform a bottom-up summarization starting from the children and proceeding to the next higher level[1] (fig 3, Bapat).

Regarding claims 2, 14 and 23, Bapat discloses: A method, a computer system and a computer readable medium article of manufacture with instructions for the purpose of including

[1] The child table 44 has the summary as four field columns representing attributes att9-att12, The child table 38 has the summary as four field columns representing attributes att5-att8. All these field columns are linked together with their respective relationship as next neighbor and represented as a list of attributes 30. The list 30 has the summary of relationship between parent and children.

many records in a child level with one record in a parent level for data mining, the method comprising the steps: identify a parent level record (col. 6, lines 62-67, Bapat); select child-level records corresponding to the parent level record[2] (col. 7, lines 1-7, Bapat); characterize the child-level records into a transformed field [3] (col. 7, lines 15-19, Bapat); and append the transformed field to the parent-level record (col. 5, lines 40-47, Bapat).

Regarding claims 3 and 24, all the limitations of these claims have been noted in the rejection of claim 2 and 23 above, respectively. In addition, Bapat discloses: wherein the transformed field is one of a plurality of transformed fields (attributes 5-12 are transformed field in fig. 3, Bapat).

Regarding claims 4 and 25, all the limitations of these claims have been noted in the rejection of claim 2 and 23 above, respectively. In addition, Bapat discloses: further comprising the steps: provide a record class (class P1, D1, D2, fig. 3, Bapat); provide a characterizing function associated with the record class (characterizing of class P1 is att1-4, col. 6, lines 62-63, Bapat); and categorize the selected child as members of the record class (D1, D2, fig. 3, Bapat); wherein the step categorize step uses the characterizing function to determine the transformed field (col. 7, lines 15-19, Bapat).

As per claims 6 and 27, all the limitations of these claims have been noted in the rejection of claims 1 and 22 above, respectively. It is therefore rejected as set forth above. In addition, Bapat discloses: use a single table containing the summarized data for data mining (18, fig. 1 and corresponding text, Bapat).

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[2] Example as select a child table 38 is constructed representing derived class 24 and includes field column 40 is name P1, this filed contains the same object identifier corresponding to the parent table 32

[3] each transformed field in the parent-children records as attributes field 1-12 join in together if find all attribute in records having the same object identifier in fields obj_id in table p1, field P1 of table D1 and field D2 of table D2.

Regarding claims 7, 17 and 38, Bapat discloses: A method, a computer system and a computer readable medium article of manufacture with instructions for preparing a relational database for data-mining as a flat database, the method comprising: identify a data model (16, fig. 1, Bapat); generate a data hierarchy tree (12, fig. 1, Bapat); collect multiple events in child records associated with a parent record (collect all attributes 1-12 and represent as table fig. 3, Bapat); characterize the nature of multiple events in the child record (col. 7, lines 15-19, Bapat); extract features from the child records , where feature extraction depends on the nature of the multiple events in the child records (translator all the attributes in children into the parent table as fig. 3); append extracted features to the parent record (col. 5, lines 40-47, Bapat); and repeat the method for all child records (repeat step in table 38 and 44, fig. 3, Bapat).

Regarding claims 11, 20 and 32, Bapat discloses: A method, a computer system and a computer readable medium article of manufacture with instructions for determine the relationships among tables in a database, the method comprising the steps:

identify potential primary key fields (obj_id in table 32, fig 3, Bapat);

determine table hierarchy that identifies tables as parent tables and related child tables (table 32, 38 and 44, fig. 3, Bapat);

explore intractable data relationships to reduce the size of a data table (reduce the size of data table as join all the child tables into their parent table as many to one relationship at fig. 3, Bapat); and

explore inter-table data relationships between data in a parent table and data in a child table to that parent (join all the child tables into their parent table as many to one relationship at fig. 3, Bapat).

Regarding claims 12, 21 and 33, Bapat discloses: A method, a computer system and a computer readable medium article of manufacture with instructions identify potential primary key fields, the method comprising the steps:

identify a redundant field (Obj_id, P1, D1) whose name appears in a plurality of tables (all attribute fields in child table have join in the parent table as the list 30, fig. 3, Bapat);

identify as a parent table a table in which the value of the redundant field is unique for each record (each obj_id in table 32 is unique for each record), whereby the redundant field is a primary key for the parent table(obj_id, fig. 3, Bapat);

select as a parent record a record from the parent table, whereby the value of the redundant field of the parent record is unique in the parent table (obj_id is unique in the parent table 32, fig. 3, Bapat);

select as child records all records in tables other than the parent table for which the value of the redundant field is the same as the value of the redundant field in the parent record (all the records in child table links to the parent table as many-to-one relationship, for example, the same obj_id in the relational table 32 is related to the child tables as attributes 5-12, fig. 3) ; and

identify as a child table a table that is not the parent table and that has the redundant field (the table 44 is a child table and have redundant field as D1 in fig. 3, Bapat).

Regarding claim 34, Bapat disclose: A memory for storing data for analysis by a data mining application, the memory comprising: a data structure stored in said memory comprising a flat database table (18, fig. 1 Bapat); a primary record in the database table reflecting one instance of a set of fields of data (obj_id field is the unique for record in the table 32, fig 3,

Bapat), the record being associated with a plurality of secondary records in a linked database table (col. 7, lines 32-38, Bapat); a raw data field in the database table containing raw data stored in the table (the attribute 1-12 is the stored in the data filed in parent table as a list 30, fig. 3, Bapat); and a transformed data field in the database table containing transformed data (all attributes 5-12 is the data in child table an also be linked to the parent table as a list 30, fig. 3, Bapat), the transformed data field in the primary record representing the plurality of secondary records associated with the primary record (obj-id in the parent table is the primary record have the relationship which all records associated in the child table 34 and 44, fig. 3).

Regarding claim 35, all the limitations of these claims have been noted in the rejection of claim 34. In addition, Bapat discloses: wherein the transformed data field is a statistic summarizing the values of the plurality of records associated with the primary record (attribute 5-12 is a statistic values of records associated with attribute 1-4 in the parent table, fig. 3, Bapat).

Regarding claim 36, all the limitations of these claims have been noted in the rejection of claim 34. In addition, Bapat discloses: wherein the transformed data field is a computed transformation of the values of the plurality of records associated with the primary record (attribute 5-12 is a values of records associated with attribute 1-4 in the parent table, fig. 3, Bapat).

5. Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 8-10, 18-20 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bapat (U.S 5295256) in view of Bakalash et al. (U.S 6385604) (Bakalash).

Regarding claims 8, 18 and 29, Bapat discloses: A method, a computer system and a computer readable medium article of manufacture with instructions for transforming a relational database to a flat database, the method comprising the steps: provide a relational database having a first table and a second table (table 32, 38, fig. 3, Bapat), each table having a plurality of records (col. 7, lines 1-7, Bapat), each record having a plurality of fields (attribute 1-12, fig. 3, Bapat), wherein a linked field in a selection record in the first table contains data corresponding to data in a linking field of a plurality of records in the second table (col. 7, lines 51-58, Bapat).

However, Bapat didn't disclose: characterize the data in a summarized field in the second table by computing summarization data, wherein the summarized field in the second table is not the linking field; and append a summarization field to the first table; and store the summarization data in the summarization field of the selection record in the first table. On the other hand, Bakalash discloses: characterize the data in a summarized field in the second table by computing summarization data (summary month, quarter, year fact tables in fig. 5b, Bakalash), wherein the summarized field in the second table is not the linking field (only the result summary table will link to the parent table); and append a summarization field to the first table (the summary dimension tables as mktkey prodkey, timekey will be add to the fact table, fig. 5B,

Bakalash); and store the summarization data in the summarization field of the selection record in the first table (all these summarization will be store in facts table, fig. 5B, Bakalash). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include characterize the data in a summarized field in the second table by computing summarization data, wherein the summarized field in the second table is not the linking field; and append a summarization field to the first table; and store the summarization data in the summarization field of the selection record in the first table in the system of Bapat as taught by Bakalash. The motivation to the combine would have been because a very large relational table has faster retrieval if it has a hierarchical structure.

Regarding claims 9 and 30, all the limitations of these claims have been noted in the rejection of claims 8 and 29 above, respectively. In addition, Bapat discloses: further comprising the step: repeat the characterizing step and the appending step for all records in the first table (repeat step transform each attributes in table 38 and 44, fig. 3, Bapat).

As per claims 10, 19 and 31, all the limitations of these claims have been noted in the rejection of claims 8, 18 and 29 above, respectively. It is therefore rejected as set forth above. In addition, Bapat discloses: convert (20, fig. 1, Bapat) the relational database to a flat database (col. 5, lines 35-47, Bapat) by appending to a parent table record at least one field summarizing the values in child table records linked to the parent table(all child table records join in the parent table records as the result translator from 12 to 18 as fig. 1, Bapat); and apply a flat database data mining technique to the flat database (18, fig. 1, Bapat).

6. Allowable Subject Matter

Claim5, 16 and 26 are would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record and that encountered while searching for the claimed invention fails to anticipate and/or suggest: A method, a computer system and a computer readable medium article of manufacture with instructions for the purpose of preparing a relational database having a many-to-one relationship for data mining, the method comprising the steps: wherein provide a record class step includes the steps: provide as a first class time series records with a regular sampling interval, the characterizing function associated with the first class of records being a selected from the group of digital signal processing algorithms consisting of local cosine transform coefficients and linear predictive coding coefficients; provide as a second class time series records having an irregular sampling interval, the characterizing function associated with the second class of records begin selected from the group consisting of trend analysis, Markov modeling, and statistical summarization as recited in claims 5, 16 and 26 above.

7. Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cindy Nguyen whose telephone number is 703-305-4698. The examiner can normally be reached on M-F: 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 703-308-1436. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Cindy Nguyen

September 24, 2004

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